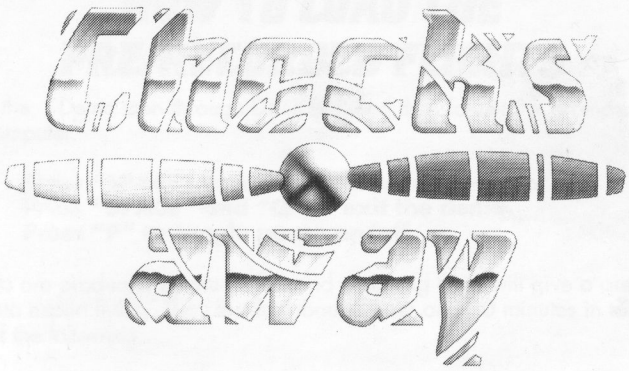
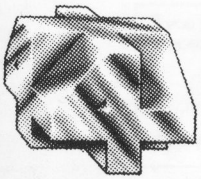
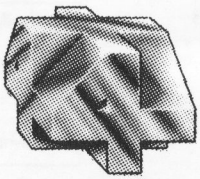


PILOT'S FLYING MANUAL



The Fourth Dimension



The Fourth Dimension

HOW TO LOAD THE GAME

Click on the ! Chocks icon through DESKTOP and then follow the prompts given by the computer.

HOW TO LOAD THE PRE-RECORDED FLIGHTS

Click on the ! Demo icon through DESKTOP and then follow the prompts given by the computer.

Press "SPACE" to move onto the next demo.
Press "SPACE" and "Q" to exit the demo.
Press "P" to toggle pause on/off.

The flights are produced by the author and watching them will give a great insight into expert flying. They last for about 1 hour and 30 minutes in total and consist of the following:

The Roll
The Loop
Landing
Stunts - on and around an aircraft carrier
The Stall Turn - very useful
Mission 17 - advanced combat
Mission 1 - totally completed
Mission 1 - failed
Mission 12
Mission 14
Mission 7
Mission 8
Mission 17
Mission 12
Mission 8
Mission 5

HOW TO LOAD THE PRE-SET POSITIONS

Click on the ! Extras icon through DESKTOP and then follow the prompts given by the computer.
The pre-set positions include landing on a carrier, dogfighting and so on. These allow you to practice specific skills.

If you have any difficulty loading any of the above please try the following procedure:
1. Switch off your computer.
2. Hold down the R key and keep it held down.
3. Turn on your computer and release the R key after 5 seconds.
4. Now try to load again as above.

If you have a hard drive please ensure that the computer is configured to drive 0.

INTRODUCTION

There's no better way to learn how to fly than in a bi-plane. They're tough, highly manouevrable, technically very simple to fly but above all great fun. They have simple controls and instruments which are easy to master so you'll soon be in full control.

GETTING A QUICK TASTE

It is well worth reading all the instructions provided. But if you can't wait to have a quick try then here's how you can be up in the air within 1 minute using keyboard controls:

1. **Select the practice option.**
2. **Press the left"CTRL" key and hold down for about 3 seconds. Your bi-plane will accellerate along the runway.**
3. **When the big left dial (the speedometer) has climbed 2 notches press the "?" key and your plane will take off.**
4. **Use keys "Z" and "X" to bank left and right and use keys "?" and " to climb and dive. Press "RETURN" to fire.**
5. **You can now go for a fly around and take a few pot shots. When you're ready to know more or if you wish to use other controls then read on.**

OPTIONS SCREEN

After loading is complete you will be presented with the options screen.

IMPORTANT - During any game you have a limited supply of fuel and can only take a limited amount of hits. To refuel and repair your plane you must land back safely at your original runway. You may do this as often as you wish.

PRACTICE

This allows you to fly around any of the 3 maps without being attacked. There are plenty of targets on the map to destroy but they will not shoot at you. Points are awarded for destroying flashing targets so you can measure your increasing competence.

Try flying upside down and doing silly manoeuvres as you will learn the way your craft behaves and the things it can and cannot do. Bi-planes are superb for manoeuvres but it's better to know your limits before entering full blown combat. Watch the pre-recorded flights for inspiration for some very exciting manoeuvres.

DOGFIGHT

This option allows 2 pilots to simply duel with each other. There are no other targets to distract you so you can concentrate on each other. A record is kept of each pilots "kills". Read the playing guidelines later in the manual to give you tips on outwitting your opponent.

MISSIONS

Once you've mastered flying your plane then one or two pilots can attempt the 20 missions. To complete a mission you must destroy all the targets mentioned in the pre-flight briefing which are then shown flashing on the map. Once you have destroyed all the required targets then you must return to base and land safely. If two pilots embark together and only one returns then a penalty of 200 points will be deducted.

You can try to destroy anything that you encounter on your mission. Some things cannot be destroyed but anything you do manage to destroy will gain points. Don't shoot at anything around your own runway or you'll get a nasty shock.

Bonus points are also available. There are up to 120 time bonus points depending on how quickly you completed the mission and there are up to 80 points awarded depending on how damaged your plane(s) are at the end of the mission.

Once a mission has been completed you may attempt the next. A completed mission will be recorded permanently if disc 2 is write-enabled. For every 2 missions you complete you will be promoted. On later missions it will be essential to refuel your plane at certain stages and if you take a lot of hits it may also be worth returning to get repaired. Simply return to your starting base and land safely. You will be both refuelled and repaired. This may be done as often as you wish.

MAP

This allows you to choose the map on which you would like to practice.

CONTROL SELECTION

Keyboard/Mouse/Joystick/Dual Atari 9 Pin Joysticks can be used. The mouse sensitivity can be adjusted using the left hand mouse button when MOUSE is selected. To use dual joysticks you need to buy an interface and select the keyboard option. This may seem strange but it is due to the way that the interfaces work.

THE BLACK BOX FLIGHT RECORDER

You can record any flight and save it to disc for replaying at any later time. See the section at the end of the manual.

CONTROLS AND INSTRUMENTATION

The following controls may seem complex but you need only know how to read the 4 dials, the damage meter and the main controls to survive. The other controls are simply for your enjoyment as you progress.

DAMAGE METER

This consists of six, from left to right, one red, two yellow and three green. When the plane is OK they are all lit and as you acquire damage they go out. When a green light is lit the plane is OK, the yellow means it is slightly damaged and the red means it is in need of repair.
The meter is on the bottom right of the console on the one player section and just above the score on the two player section.

1 PLAYER

CONSOLE

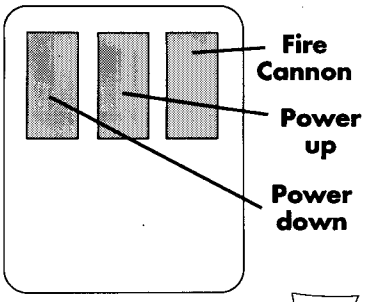
FUEL GAUGE SPEEDOMETER ALTOMETER COMPASS DAMAGE METER

MAIN CONTROLS

KEYBOARD

Z ..... Roll/steer left
X ..... Roll/steer right
? ..... Climb
" ..... Dive
RETURN .. Fire cannon
Left CTRL .... Throttle up
Left SHIFT ... Throttle down

MOUSE/VOLTMACE JOYSTICK



OTHER CONTROLS

Keypad 8 .. Forward view
Keypad 2 .. Rear view
Keypad 4 .. Left view
Keypad 6 .. Right view

ENTER ... Toggle internal/ external views

P ..... Pause on
SPACE or RETURN .. Pause off
M ..... View Map
SPACE or RETURN .. Map off
C ..... Toggle cross hair sight
F1 ..... Volume down
F2 ..... Volume up
F3 ..... Toggle on/off internal speaker

Press **Q** and **F12** to quit current game

2 PLAYERS

MAIN CONTROLS

KEYBOARD

ACTION	PLAYER 1 (top)	PLAYER 2 (bottom)
Roll/steer left	E	Keypad 7
Roll/steer right	R	Keypad 8
Climb	A	Keypad +
Dive	Q	Keypad -
Fire Cannon	T	ENTER
Throttle up	~	PAGE DOWN
Throttle down	TAB	COPY

Mouse/Joysticks - as with 1 Player

SECONDARY KEYBOARD CONTROLS

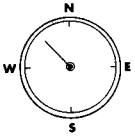
ACTION	PLAYER 1	PLAYER 2
Map on	1	Keypad #
Map off	2	Keypad *
Toggle in/out view	8	CTRL (right)
Forward view	U	Cursor up
Rear view	N	Cursor down
Left View	H	Cursor left
Right View	J	Cursor right
Cross hair toggle	Y	Keypad .

CONSOLE

Speedometer

Altometer

Fuel



Compass

□□□□□□

Damage Meter

Other Keyboard Controls

P ..... Pause on
SPACE .. Pause off
F1 ..... Volume down
F2 ..... Volume up
F3 ..... Toggle internal speaker on/off

NB In two player games the action continues even while a player is looking at his/her map.

Also in two player games the top left player always uses the keyboard or Atari 9 pin joystick and the bottom right player may use the keyboard, mouse or joystick depending on what is selected on the main menu.

AIRCRAFT AND GROUND TARGETS

Select the View Targets option on the main menu to have a look at the different aircraft and ground targets featured in the game and which are described below. Press "P" if you wish to stop them rotating. Press SPACE to remove pause.

De Havilland Tiger Moth (D.H.82a)

This is the plane you will be flying. It is a single engine, two seated bi-plane and is armed with a single 30mm fuselage mounted cannon making it a very effective fighting machine.
Engine: Seven cylinder rotary engine producing 187bhp at 4500rpm and 165lb thrust
Max Speed: 117 knots at sea level
Stall Speed: 42 knots
Climb Rate: 1400 feet per minute

Fokker V7 Twin

This is a twin engine, two seated mono-plane with a characteristic twin rudder tail plane and is armed with a single front facing 15mm cannon.
Engine: Two GMEC 02-201 engines rated at 320 bhp
Max Speed: 132 knots at sea level
Climb Rate: 1600 feet per minute

Fokker Eindecker IV

This is a single engine, single seated low wing mono-plane fighter aircraft designed to be very swift and manoeuvrable and is the best of the enemy's combat fighters. It is most commonly used as an escort or in front line defence and has a front mounted 15mm cannon.
Engine: GMEC 01-201 rated at 240 bhp
Max Speed: 155 knots at sea level
Climb Rate: 1950 feet per minute

Albatross DIII Scout

This is a single engine, two seated high wing mono-plane primarily designed as a reconnaissance aircraft. It has a front mounted single 10mm cannon.
Engine: GAE 01-45 rated at 155 bhp
Max Speed: 105 knots at sea level
Climb Rate: 1250 feet per minute

Gotha G IV Bomber

This aircraft is the largest in the enemy's force and is used as a ground attack bomber or a cargo aircraft. The aircraft features four engines, a low wing design and a twin rudder tail plane.
It is armed with a centre mounted 25mm cannon capable of firing in any direction. The cannon is often unmanned or not in operation but approach with caution.
Engine: Four GMEC 02-201 engines rated at 320 bhp
Max Speed: 95 knots at sea level
Climb Rate: 300 feet per minute

Fokker VIII Triplane

This is a highly manoeuvrable, single seated, three winged combat fighter. It has a single fuselage mounted 20mm cannon and is used as a general purpose fighter.
Engine: GAE 01-107 rated at 192 bhp
Max Speed: 120 knots at sea level
Climb Rate: 1500 feet per minute

Ground Gun Bases

These are stationary air attack guns with a rapid fire rate of three shots per second. They are often sited around runways as defence and are fitted with a 30mm cannon designed for this purpose.

Tanks

These are not dissimilar to ground bases and are also equipped with a 30mm cannon. They are usually found in open country.

Store Buildings

These are used to store enemy equipment and are often sited around enemy runways.

Head Quarters

These are the nerve centre of the enemy's planning and organisation and can leave the enemy helpless when destroyed. They are the main target for many missions.

Control Towers

These control the air traffic for the enemy and can put their runways out of use when destroyed.

Patrol Boats

These are unarmed boats which survey the area and send information back to enemy Head Quarters.

PLAYING GUIDELINES

Map and compass

The map shows your position and your direction indicated by an arrow. The compass shows the direction in which you are going related to the map. Therefore when the needle on your compass is pointing straight up you are heading north and when it is pointing to the left you are heading due west etc.

Selecting the map in the one player mode causes the game to pause. This is not the case in the two player mode and if one or both players looks at their maps then the action continues.
Now load the ! Demo on disc 1 to watch the author demonstrate the following during 1 1/2 hours of pre-recorded flights. IT'S WELL WORTH IT.

Take off

First have a look at the map to see where you want to head. Allow your speed to build to about 50 knots and then attempt to gently climb. After a few seconds climbing it is safe to bank left or right. When initially taking off you will always be facing to the west and your base will always be in the centre of the map.

Landing

You can only land at your own base. Other runways are dangerous due to poor maintenance by the enemy. A mission will only be complete on safe return to your base and it is also the only place to refuel and repair.

When preparing to land always allow yourself plenty of distance from the runway for your approach and ensure you are on the correct line heading east or west. Come in quite low and throttle down to about half power as you get near. Try to land at the start of the runway as you will then have more time to stop. Keep the plane level and be as gentle as you can on touch down. Once you hear the touchdown, throttle down completely and steer left and right as necessary to keep her steady. As long as you're not going too fast you will stop in good time. A bit of practice and you'll do it without thinking after a while.

Landing on an aircraft carrier is slightly more tricky as it is a lot smaller than a runway. The carrier should be approached from the west as there is an arrestor line to pull you up at the east end. Your plane has an arrestor hook which will catch on this line if you land correctly. The arrestor hook only works when the engine is switched off. Follow the same basic procedure as if on land.

Taxiing on runways

Sometimes it will be necessary to land to refuel particularly on later missions. Once landed you will see the message "plane refuelled and repaired". You can now taxi around by applying a very small amount of power and steering as normal. Do be careful not to get too much power, especially on a carrier as you can easily taxi straight off the edge.

Turning in the air

To turn you need to use a combination of roll and climb. Roll in the direction you wish to turn and use climb to pull the craft around.

Stalling

Your plane will stall when the airspeed over the wings is below 42 knots. Below this speed the smooth flow of air creating high pressure becomes turbulent and no longer gives any lift. Your plane will then fall out of the sky, nose first, due to the weight of the engine and the fact that the main wing stalls before the tail wing. If you have enough height you can recover as your speed will increase. Use climb to pull you out of the dive.
Stalling is caused by trying to climb too hard for too long or having insufficient throttle to sustain adequate speed.

Watch the Stall Turn on the pre-recorded flights to learn how to do this very useful manoeuvre.

STUNTS

Barrel Roll

This useful manoeuvre is very simple. Make sure you are doing over 60 knots and are flying straight. Then apply full climb and full left or right roll. Your plane will maintain its direction but move up and down and left and right as it rolls. This is very useful when you are being tailed to avoid being hit.

Loop

This can be very useful to get behind a plane that is tailing you. Apply full throttle and full climb and hold her steady. If you simply wish to turn around you can do a half roll at the top of the loop and you'll be going back the other way.

COMBAT

Your plane has one main advantage over all your enemies. Your weapon is more powerful and has a longer range. For this reason it makes good sense to get lined up on a target from a good distance and get a good few shots in before they can shoot back. Some opponents such as bombers need a good few hits before they are disabled. So it also makes sense not to get in too close, fly slowly and shoot from a distance preferably from behind.

Fighters

Fighters will go down with relatively few hits from your 30mm cannon. Taking them out in the first approach is infinitely preferable to a protracted dogfight with a plane that might be faster and perhaps more manoeuvrable than yours. Spot them early and be well versed with lining up your targets quickly. You can let rip with a good barrage of shots but do remember to pull away in time so that you do not collide. Experienced pilots will get a good percentage of kills on the first pass.

Ground Targets

Generally it's best to not come in too steeply as then you'll have more chance to shoot at the target before you climb out of the attack. If you miss the target or fail to destroy it then fly on for a while before turning. If you try to turn too soon you will not have much chance to get the target back in your sights.

Dogfighting

The best plan of action is to try to get behind the enemy. Use the stunts mentioned earlier to avoid being hit and for trying to get in pursuit. Use your different views to locate the enemy and generally keep turning, climbing and diving. They'll be trying to survive too and they have a few tricks of their own. Remember that each enemy fighter will only patrol within a certain region so you can shake them off by keeping on route and rolling.

A little trick you may find useful is that when attacked by planes that are faster than yours then allow them to come up behind you and throttle down. Often they will not expect this and they will shoot past giving you a chance to open fire on them.

Avoiding Conflict

On route and on return from missions you may meet patrolling fighters. A little trick here is to get as much height as you can before you reach his location and then steadily dive to build up speed and out run him. If you've already taken a few hits this makes very good sense as even barrel rolling will only avoid the majority of shots. It's very annoying to be shot down by a routine patrol after completing all the objectives of a big mission.

THE BLACK BOX FLIGHT RECORDER

Before reading further get a blank disc and format it into a Black Box Disc using the ! Format icon on Disc 1. Black Box Recordings must be saved to a specially formatted Black Box Disc and you will not be able to format such a disc once the game has loaded.

Recording a flight

The main menu allows you to select Recorder On if you wish to record a flight and once selected it will function automatically. Before taking off ensure that your Black Box Disc is inserted into drive 0 so that your flight can be saved to it. The recorder will record everything about your flight including speed, height, direction of view etc. so you will see everything that you saw during the flight. Once the Black Box is full you will be prompted to save its contents to the Black Box Disc.

During a very long flight it will be necessary to make several "saves" but you will be prompted each time so it is quite simple. At the end of the flight you should then make the final "save". The disc will be catalogued and you will be requested

to enter an identification name with a maximum of six characters. This name will be prefixed with the following:

Dog	**Dogfight file**
M1 to M20	**Mission 1 to 20 file**
Pr1 to Pr3	**Practice file 1 to 3**

For example a file may be called M1Andrew or DogAndrew etc.

The two player files are stored in a separate directory and you should use the one/two player toggle on the main menu to select which.

Replaying a 'saved' flight

Your recorded flights are replayed via the main menu. The correct map for the flight needs to be in memory and you will be prompted to load it from Disc 2 if it is not. You also need to select whether it is a one or two player flight. Insert your Black Box Disc into drive 0 and select the Replay Flight box on the main menu. This will catalogue the disc and allow you to select a flight with the pointer.

PLEASE NOTE: *Flights must be replayed from the start and cannot be started mid-way.*

Hold down "F" to fast forward.

Press "T" to takeover the controls.

If you do take over the controls during a recorded flight then 300 points will be deducted from the current score as this is obviously a form of cheating. You will be able to continue the flight from the point at which you took over the controls although you will not be able to re-save the flight. The original flight will still be on the disc and your score may be entered on the high-score table if you have scored enough.

CHOCKS AWAY OLD CHAPS

© 1990 The Fourth Dimension

Notes